

THAT WHICH IS CLAIMED:

1. A method for providing transactional quality of service, the method comprising the steps of:
  - 5 providing transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and
  - 10 determining a quality of service level associated with the data transmission transaction based on the transaction service level information received by the communication process from the application.
2. A method according to Claim 1, further comprising incorporating
  - 15 information corresponding to the quality of service level into data transmissions associated with the data transmission transaction, wherein the quality of service level information is incorporated separate from the data for the data transmission transaction.
3. A method according to Claim 2, wherein the step of incorporating
  - 20 information comprises the step of incorporating into at least one header of at least one of the data transmissions an indicator of quality of service for the at least one of the data transmissions.
4. A method according to Claim 2, wherein the step of incorporating
  - 25 comprises incorporating quality of service level information into an Internet protocol (IP) header field of data transmissions associated with the data transmission transaction.

5. A method according to Claim 4, wherein the quality of service level information comprises at least one of a type of service value and a differentiated services code point value.

5 6. A method according to Claim 2, wherein the data transmissions associated with the data transmission transaction are data transmissions transmitting data provided with a request from the application for the data transmission transaction.

10 7. A method according to Claim 2, wherein the data transmissions are data transmissions for a connection associated with a request from the application for the data transmission transaction.

15 8. A method according to Claim 2, wherein the data for the data transmission transaction is encrypted.

20 9. A method according to Claim 1, further comprising the steps of:  
determining if the provided transaction service level information is provided for transactions associated with a connection of the communication process; and

25 establishing the determined quality of service level as the quality of service level for subsequent data transmissions associated with the connection if the transaction service level information is provided for transactions associated with a connection of the communication process.

10. A method according to Claim 9, wherein the step of establishing the determined quality of service level as the quality of service level for subsequent data transmissions associated with the connection comprises allocating system resources for a data processing system associated with the communication process which are based on the determined quality of service for the data transmission.

11. A method according to Claim 1, further comprising establishing the determined quality of service level as the quality of service level for data associated with a request for a data transmission transaction from the application.

5 12. A method according to Claim 11, wherein the step of establishing the determined quality of service level as the quality of service level for data associated with a request for a data transmission transaction from the application comprises allocating system resources for a data processing system associated with the communication process which are based on the determined quality of service  
10 for the data transmission transaction.

13. A method according to Claim 10, wherein the step of establishing the quality of service level comprises the step of establishing transmission parameters associated with the communication process which are based on the  
15 determined quality of service for the data transmission transaction.

14. A method according to Claim 1, further comprising the steps of:  
determining if a response associated with the data transmission transaction  
is received by the communication process; and  
20 allocating resources of a data processing system associated with the communication process to process the received response utilizing a quality of service level based on the determined quality of service of the data transmission transaction established for the data transmissions associated with the received response.

25 15. A method according to Claim 14, wherein the response comprises an acknowledgment of a data transmission associated with the data transmission transaction.

30 16. A method according to Claim 14, wherein the step of determining if a response associated with the data transmission transaction is received by the

communication process comprises determining if a response received by the communication process is associated with a connection associated with the data transmission transaction.

5           17.     A method according to Claim 14, wherein the quality of service level utilized to allocate resources of the data processing system is different from the determined quality of service.

10           18.     A method according to Claim 1, wherein the step of determining a quality of service level comprises the steps of:

              determining if the transaction service level includes an identification of a predefined quality of service level; and

              utilizing the predefined quality of service level as the determined quality of service level if the transaction service level includes an identification of the  
15       predefined quality of service level.

              19.     A method according to Claim 1, wherein the step of determining a quality of service level comprises utilizing a policy/rule database to determine the quality of service level by providing at least a portion of the transaction service  
20       level information to the policy/rule database.

              20.     A method according to Claim 1, wherein the step of determining a quality of service level comprises utilizing a predefined quality of service level as the determined quality of service level if the transaction service level includes  
25       identification of the predefined quality of service level.

              21.     A method according to Claim 1, wherein the communication process comprises a TCP/IP kernel.

30           22.     A method according to Claim 1, wherein the communication process comprises a communication protocol stack.

23. A method for establishing a quality of service level for the transmission of data, comprising:

providing an application program interface to a communications process which both receives data to be transmitted by the communication process and  
5 receives quality of service information associated with the data to be transmitted so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data to be transmitted.

24. A method according to Claim 23, further comprising the step of  
10 incorporating quality of service level information into data transmissions separate from the received data so as to allow network devices to establish the quality of service level for the received data without evaluating the contents of the received data.

25. A method according to Claim 23, further comprising the step of  
15 associating the quality of service level for the transmission of the received data with responses received as a result of transmitting the received data so as to establish a quality of service level for processing responses to transmission of the received data.

26. A method according to Claim 23, wherein the quality of service  
20 level is established for all data transmitted for a connection associated with the communication process.

27. A system for establishing a quality of service level for transmitted  
25 data, comprising:

a communications process circuit comprising:

a sendmsg() application program interface configured to receive  
data to be transmitted and quality of service information associated with the data to  
30 be transmitted;

a policy service module configured to determine a quality of service level based on the quality of service information; and  
a transmit/receive process configured to transmit the received data utilizing the determined quality of service level.

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28. A system according to Claim 27, wherein the communications process comprises a TCP/IP kernel.

29. A system according to Claim 27, further comprising a quality of service policy database and wherein the policy service module is further configured to determine the quality of service level by referencing the quality of service policy database.

30. A system according to Claim 27, wherein the transmit/receive process is further configured to receive responses to the transmitted received data and associate the quality of service level of the transmitted received data with the received response.

31. A system according to Claim 27, further comprising:  
a user connection control block which contains a handle to a quality of service policy associated with the transmitted received data; and  
a transmission control block which contains a quality of service policy field which is set based on the quality of service policy of the user connection control block; and  
wherein the transmit/receive process is further configured to prepare the data for transmission based on the quality of service policy field of the transmission control block.

32. A system for providing transactional quality of service, comprising:  
means for providing transaction service level information for a data transmission transaction to a communication process executing on a data

processing system from an application requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and

means for determining a quality of service level associated with the data transmission transaction based on the transaction service level information received from the application.

33. A system for establishing a quality of service level for the transmission of data, comprising:  
an application program interface to a communication process which both receives data to be transmitted by the communications process and receives quality of service information associated with the data to be transmitted so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data.

34. A computer program product for providing transactional network quality of service, comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:  
computer readable program code which provides transaction service level information for a data transmission transaction to a communication process executing on a data processing system from an application requesting the data transmission transaction, wherein the transaction service level information is provided separate from data for the data transmission transaction; and  
computer readable program code which determines a quality of service level associated with the data transmission transaction based on the transaction service level information received from the application.

35. A computer program product for establishing a quality of service level for the transmission of data, comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

- computer readable program code which provides an application program interface to a communications process which both receives data to be transmitted
- 5 by the communications process and receives quality of service information associated with the data to be transmitted so as to establish the quality of service level for the transmission of the received data without reference to the contents of the received data.

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